CURRENT RESEARCH AND DEVELOPMENT IN BIOTECHNOLOGY ENGINEERING AT IIUM

VOLUME II

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INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA

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CHAPTER 38

PURIFICATION OF PATATIN-LIKE PROTEIN (HEV B7) FROM SKIM LATEX OF *Hevea brasiliensis*

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ABSTRACT

Skim latex, a byproduct of the high ammoniated latex concentrate processing is not easily recycled into new rubber products, so finding new uses for this rubber waste is a major concern. C-serum extracted from fresh *Hevea brasiliensis* latex has been identified to contain Hev b7, a protein which is homologous to patatin found in potato tubers. Therefore, this study is carried out to develop a purification strategy for patatin-like-protein from the wasteful skim latex. Three sequential steps of column chromatography technique was employed namely an ion exchange chromatography (IEC) on DEAE Sepharose™, gel filtration chromatography on Sephacryl™, and hydrophobic interaction chromatography (HIC) on Phenyl Sepharose™. A running buffer of pH 8.0 and 17 mM Tris-HCl, which has been previously optimized, was employed in all three chromatographic steps. The purified protein showed a single band at about 45 kDa on SDS-PAGE and was confirmed to be patatin-like-protein by a strong signal obtained on Dot and Western blots, immunodetected by anti-Hev b7 from C-serum. The study was significant as an initial attempt to purify patatin-like-protein, with known antifungal properties, from skim latex for use in pharmaceutical industries. This will established an alternative way of value adding the natural rubber waste.

Keywords: *Hevea brasiliensis*, patatin-like-protein, Hev b7, purification, skim latex, ion exchange chromatography

INTRODUCTION

Rubber, or *cis*-1,4-polyisoprene, is formed in over 1,800 species of plants distributed amongst 300 genera of seven families (Backhaus, 1985). To date, rubber is produced commercially only from *Hevea brasiliensis*. Malaysia is currently one of the largest producers of natural rubber. For the production of natural rubber, the collected latex is treated with ammonia and after separation of the rubber particles the aqueous layer is usually discharged into the environment. This aqueous layer or by-product of natural rubber latex concentrate industry is